ACC.13
62nd Annual Scientific Session & Expo
TCT@ACC-i2
innovation in intervention

E844
JACC March 12, 2013
Volume 61, Issue 10

Imaging

PRACTICAL INTEGRATIVE DIAGNOSTIC STRATEGY FOR PATIENTS WITH SUSPECTED CORONARY ARTERY DISEASE: INSIGHT FROM 1,286 PATIENTS UNDERGOING BOTH ANATOMICAL AND FUNCTIONAL TESTS

Poster Contributions
Poster Sessions, Expo North
Saturday, March 09, 2013, 10:00 a.m.-10:45 a.m.

Session Title: Imaging: CT/Multimodality I
Abstract Category: 20. Imaging: CT/Multimodality
Presentation Number: 1140-335

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Background: There has been a lack of standardized practical integrative diagnostic strategies for coronary artery disease (CAD). The aim of this study was to compare the diagnostic performance and prognostic value of coronary computed tomographic angiography (CCTA) and single-photon emission-computed tomography (SPECT) in order to determine an effective diagnostic strategy for CAD.

Methods: A total of 1,286 patients who underwent both CCTA and SPECT within 90 days, between November 2004 and November 2010, were retrospectively reviewed in 2 cardiac centers. Diagnostic performance of CCTA and SPECT were compared using invasive coronary angiography (ICA) as a reference standard. The cardiac events including cardiac death, non-fatal myocardial infarction, unstable angina and late (> 90 days after the exam) revascularization were assessed.

Results: CCTA showed better sensitivity and specificity than SPECT in detecting ≥ 50% stenosis given by ICA and better specificity in detecting ≥ 70% stenosis. During the mean follow-up period of 796 ± 568 days (median, 738 days), there were 7 cases of cardiac death (0.5%), 11 cases of non-fatal myocardial infarction (0.9%), 75 cases of unstable angina (5.8%) and 19 cases of revascularization (1.5%). The prognostic value of abnormal MPI on SPECT was significant when patients had stenoses of 0%-49% 50%-69% or 70%-89% ($p < 0.05$ for each), whereas it was not in patients with very severe stenoses of ≥ 90% ($p = 0.194$) on CCTA. The information on the presence of ischemia on SPECT had incremental prognostic value to baseline clinical parameters in patients with 0%-49%, 50%-69% or 70%-89% stenoses ($p < 0.05$) but not in patients with very severe stenoses of ≥ 90% ($p = 0.647$) on CCTA.

Conclusions: CCTA showed greater diagnostic accuracy than SPECT for the detection of significant CAD. In patients with very severe stenoses of ≥ 90%, the prognostic value of SPECT was limited, but SPECT provided significant prognostic value in patients with luminal stenoses of < 90%. From these results, we can suggest an integrative diagnostic strategy for patients with suspected CAD: initial CCTA with subsequent functional tests if CCTA reveals stenosis of 50-89% on CCTA.